

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. - 44. (Cancelled).

45. (Currently amended) ~~In a radio network having a plurality of base stations, each providing wireless communication services for mobile units in a respective geographic coverage area that may or may not overlap with the geographic coverage areas of other of the base stations, and an interface connected to the base stations, a~~ A method for ~~[[of]]~~ handoff of a wireless communication with a mobile unit ~~to conducted via a first base station to a second base station~~ having a selectively operable beamforming antenna comprising:

receiving from an interface in response to detecting a detected handover trigger for a mobile unit a relative location of the mobile unit with respect to the beamforming antenna of the base station ~~event during the mobile unit's wireless communication via the first base station;~~

directing beacon channels toward the mobile unit location to receive an omnidirectional sounding pulse;

detecting by the base station the transmitting an omnidirectional sounding pulse from the mobile unit in response to the ~~[[a]]~~ detected handover trigger, the omnidirectional sounding pulse being detectable by the base stations in order to establish wireless communication with the mobile unit located in a geographic coverage area of the base station;

communicating information related to the detected sounding pulse to the interface ~~by each base station detecting the sounding pulse;~~

~~when selected from among selecting the second base station from the base stations that detected the sounding pulse, receiving from the interface notification to continue wireless communication with the mobile unit as part of a handover based on the communicated information; and~~

continuing the mobile unit's wireless communication by ~~[[via]] the selected second base station.~~

46. (Canceled)

47. (Currently amended) The method of claim 45 ~~wherein each base station has a selectively operable beamforming antenna, further comprising:~~

~~receiving from the interface a command determining a relative location of the mobile unit with respect to the beamforming antennas of base stations neighboring the first base station and commanding the neighboring base stations to sweep beacon channels over an arc encompassing the mobile unit location to receive the transmitted sounding pulse.~~

48. (Currently amended) The method of claim 45 performed by a Node B as the base station wherein ~~[[;]]~~

~~the radio network is a UMTS Terrestrial Radio Access Network (UTRAN), each base station is a Node B, the interface is a Radio Network Controller (RNC) and the mobile unit is a mobile User Equipment (UE)[[;]]~~

~~the communicating information is between Node Bs and the RNC via an Iub or combination Iub/Iur interface;~~

~~the second base station selection is performed by the RNC by selecting a second Node B; and~~

~~the UE's communication continued via the second Node B is via a Uu interface.~~

49. (Canceled)

50. (Currently amended) The method of claim 48 ~~wherein each Node B has a selectively operable beamforming antenna~~, further comprising:

receiving from the RNC a command ~~determining a relative location of the UE with respect to the beamforming antennas of Node Bs neighboring the first Node B and commanding the neighboring Node Bs to sweep beacon channels over an arc encompassing the UE location to receive the transmitted sounding pulse.~~

51. (Currently amended) The method of claim 48 ~~wherein each Node B has a selectively operable beamforming antenna~~, further comprising:

receiving from the RNC ~~determining~~ a relative location of the UE with respect to the beamforming antenna of the ~~selected-second~~ Node B based on information related to the detected sounding pulse whereby the continuing of the UE's communication by ~~[[via]]~~ the ~~second~~ Node B includes operating the selected Node B's antenna to form a communication beam for at least one dedicated channel covering a selected portion of the coverage area serviced by the second Node B that encompasses the determined relative location of the UE.

52. (Canceled)

53. (Currently amended) The method of claim 45 ~~wherein each base station has a selectively operable beamforming antenna~~, further comprising:

receiving from the interface determining a relative location of the mobile unit with respect to the beamforming antenna of the ~~selected~~ base station based on information related to the detected sounding pulse whereby the continuing of the mobile unit's communication by ~~[[via]]~~ the ~~second~~ base station includes operating the ~~selected~~ base station's antenna to form a communication beam covering a selected portion of the coverage area serviced by the ~~selected~~ base station that encompasses the relative location of the mobile unit.

54. (Currently amended) The method of claim 53 wherein the formed communication beam carries common channels and wherein the operating the ~~selected~~ base station's antenna to form a communication beam that encompasses the relative location of the mobile unit is conducted such that other mobile units with which the ~~selected~~ base station is conducting wireless communication are also encompassed within the formed communication beam so that the formed beam provides common channel service to a plurality of mobile units.

55-58. (Canceled)

59. (Currently amended) A base station communication network ~~for wireless communication with mobile units~~ comprising:

a selectively operable beamforming antenna configured to provide plurality of ~~base stations, each providing~~ wireless communication services in a geographic coverage area that may or may not overlap with the geographic coverage areas of other ~~of the~~ base stations;

the base station configured to receive from an interface in response to a detected handover trigger for a mobile unit a relative location of the mobile unit with respect to the beamforming antenna of the base station;

~~at least one base station interface connected to the base stations such that each base station has a controlling interface associated with its base station to mobile unit wireless communications;~~

the beamforming antenna configured to direct beacon channels toward the mobile unit location to receive an omnidirectional sounding pulse;

the [[each]] base station configured to detect sounding pulses emitted from mobile units in response to a detected handover trigger and located in the geographic coverage area of the base station in order to establish wireless communication with such mobile units for the handover of an on-going wireless communication between a mobile unit and another a serving base station;

the [[each]] base station configured to communicate information related to a detected sounding pulse from a mobile unit to an a-selected interface;

the base station configured to receive from the [[each]] interface a notification to continue wireless communication with the mobile unit as part of a handover when selected from among base stations, when acting as a controlling interface for a serving base station where a communication of a communicating mobile unit is conducted via the serving base station, configured to select a handover base station for continuing the wireless communication of the communicating mobile unit based on information communicated from each base station that detected the [[a]] sounding pulse emitted from the communicating mobile unit during the communication with the serving base station; and

the [[each]] base station configured to direct a communication beam when selected as the handover base station for a communicating mobile unit to continue

the communicating mobile unit's wireless communication via the handover base station.

60. (Canceled)

61. (Currently amended) The base station communication network of claim 59 ~~wherein each base station has a selectively operable beamforming antenna and each interface, when acting as a controlling interface for a serving base station where a communication of a communicating mobile unit is conducted via the serving base station,~~ is configured to receive a command from the interface ~~base stations neighboring the serving base station~~ to sweep beacon channels over an arc encompassing a determined location of the communicating mobile unit to receive the transmitted sounding pulse.

62. (Currently amended) The base station communication network of claim 59 configured as a ~~UMTS Terrestrial Radio Access Network (UTRAN), wherein each base station is a Node B~~ that is configured to communicate with mobile units configured as mobile User Equipments (UEs) via a Uu interface, and wherein the ~~each base station~~ interface is a Radio Network Controller (RNC) configured for communicating information with the Node B ~~Node Bs~~ via an Iub interface or combination Iub/Iur interface in connection with another RNC.

63. (Currently amended) The base station communication network of claim 62 wherein the ~~each Node B~~ has a selectively operable beamforming antenna ~~configurable~~ is configured to direct a communication beam covering a selected portion of the coverage area serviced by the Node B that encompasses the relative

location of a communicating UE when that Node B is selected as the handover Node B for a wireless communicate of the communicating UE.

64. (Currently amended) The base station communication network of claim 63 wherein ~~each Node B is configured to operate its~~ the beamforming antenna is configured to form a communication beam that carries common channels that encompasses the relative location of a plurality of UEs so that the formed beam provides common channel service to a plurality of UEs.

65-68. (Canceled)

69. (Currently amended) The base station communication network of claim 59 [[66]] ~~wherein each mobile unit is equipped with a global positioning system (GPS) and is configured to~~ detect ~~transmit~~ of an omnidirectional sounding pulse that includes mobile unit location information determined by its GPS and/or mobile unit identification information.

70. (Currently amended) The base station communication network of claim 59 [[66]] ~~wherein each mobile unit has a selectively operable beamforming antenna configured to~~ detect ~~transmit~~ of an omnidirectional sounding pulse by receiving ~~transmitting~~ multiple sounding pulses that sweep through 360 degrees or a set of calculated arcs.

71-73. (Canceled)

74. (Currently amended) ~~In a radio network having a plurality of base stations, each providing wireless communication services in a respective geographic coverage area that may or may not overlap with the geographic coverage areas of other of the base stations,~~ a A method for handoff of a wireless communication conducted by a communicating mobile unit configured with a selectively operable beamforming antenna via a serving base station to a handover base station comprising:

transmitting an omnidirectional sounding pulse from the communicating mobile unit during the wireless communication upon the occurrence of a triggering event, the omnidirectional sounding pulse being detectable by ~~[[the]]~~ base stations whose geographic coverage area includes the mobile unit in order to establish wireless communication with the mobile unit;

receiving directed directing a communication beams ~~[[beam]]~~ from base stations detecting the sounding pulse at ~~towards~~ the mobile unit;

selecting a handover base station from the base stations that detected the sounding pulse based on the communication beams received by the mobile unit; ~~[[and]]~~

determining a relative location of the selected handover base station with respect to the beamforming antenna of the mobile unit based on information related to the detected sounding pulse; and

continuing the wireless communication of the mobile unit via the selected handover base station whereby the continuing the wireless communication of the mobile unit via the selected handover base station includes operating the mobile units beamforming antenna to form a communication beam toward the selected handover base station based on the relative location of the selected handover base station.

75. (Canceled)

76. (Currently amended) The method of claim 74 ~~[[75]]~~ wherein~~[[:]]~~
~~the radio network is a UMTS Terrestrial Radio Access Network (UTRAN),~~
each base station is a Node B, ~~the interface is a Radio Network Controller (RNC)~~
and the mobile unit is a mobile User Equipment (UE);
~~the communicating information is between Node Bs and the RNC via an Iub~~
~~or combination Iub/Iur interface; and~~
~~the communication of the UE via Node Bs is via a Uu interface.~~

77-79. (Canceled)

80. (Currently amended) The method of claim 74 wherein ~~the mobile unit~~
~~has a selectively operable beamforming antenna and~~ the transmitting an
omnidirectional sounding pulse from the mobile unit is performed by transmitting
multiple sounding pulses that sweep through 360 degrees or a set of calculated arcs.

81. (Previously presented) The method of claim 74 wherein the mobile
unit is equipped with a global positioning system (GPS) and the transmitting of an
omnidirectional sounding pulse includes transmitting of mobile unit location
information associated with the sounding pulse transmitted by the mobile unit
and/or includes transmitting of identification information associated with the
sounding pulse transmitted the mobile unit.

82. (Previously presented) The method of claim 74 wherein the transmitting of an omnidirectional sounding pulse includes transmitting a series of omnidirectional sounding pulses of increasing power from the mobile unit.

83. (Currently amended) ~~A mobile unit for use in a radio network having a plurality of base stations, each base station providing wireless communication services in a respective geographic coverage area that may or may not overlap with the geographic coverage areas of other of the base stations, the mobile unit comprising:~~

a selectively operable beamforming antenna comprising:

a transmitter configured to transmit an omnidirectional sounding pulse based on the occurrence of a triggering event during a wireless communication conducted via a serving base station, the omnidirectional sounding pulse being detectable by [[the]] base stations whose geographic coverage area includes the mobile unit in order to establish wireless communication with the mobile unit;

a receiver configured to receive communication beams from base stations that detected a sounding pulse transmitted by the mobile unit;
[[and]]

a processor configured to select a handover base station via which the mobile unit is to continue the wireless communication based on communication beams received by the mobile unit from base stations that detected the sounding pulse transmitted by the mobile unit;

the processor configured to determine a relative location of the selected handover base station with respect to the beamforming antenna of the mobile unit based on information related to the detected sounding pulse; and

the beamforming antenna configured to continue the wireless communication of the mobile unit via the selected handover base station by forming a communication beam toward the selected handover base station based on the relative location of the selected handover base station.

84. (Currently amended) The mobile unit of claim 83 wherein the transmitter ~~mobile unit~~ is configured to transmit a subsequent omnidirectional sounding pulse if a communication beam is not received from a base station that detected a sounding pulse transmitted by the mobile unit within a predefined time period from transmitting an omnidirectional sounding pulse.

85. (Currently amended) The mobile unit of claim 83 further comprising including a global positioning system (GPS) ~~[[and]]~~ wherein the transmitter is configured to transmit an omnidirectional sounding pulse that includes mobile unit location information determined by its GPS.

86. (Currently amended) The mobile unit of claim 83 wherein the transmitter is configured to transmit ~~[[of]]~~ an omnidirectional sounding pulse that includes mobile unit identification information.

87. (Currently amended) The mobile unit of claim 83 wherein the transmitter is configured to transmit a series of omnidirectional sounding pulses of increasing power upon the occurrence of a handover trigger event.

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88. (Currently amended) The mobile unit of claim 83 ~~including a selectively operable beamforming antenna~~ wherein the transmitter is configured to transmit an omnidirectional sounding pulse by transmitting multiple sounding pulses that sweep through 360 degrees or a set of calculated arcs.